

## Influences on Fruit and Vegetable Consumption by Low-Income Black American Adolescents

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### ABSTRACT

**Objective:** The purpose of this study was to identify personal, behavioral, and environmental factors influencing fruit and vegetable consumption among 10- to 13-year-old low-income black American youth in the lower Mississippi Delta region. Social Cognitive Theory, along with other theoretical constructs, guided focus group questions and analysis.

**Design:** A qualitative study using focus group methodology.

**Setting:** Enrichment program of a sports summer camp for low-income youth.

**Participants:** Forty-two adolescents (21 female, 21 male) participated in 6 focus groups.

**Main Outcome Measures:** Personal, behavioral, and environmental influences on fruit and vegetable consumption.

**Analysis:** Content analysis methods were used by 3 independent reviewers to identify themes within the focus group transcripts. Themes were summarized and then categorized into the 3 domains of Social Cognitive Theory.

**Results:** The major themes were taste, availability, extended family influence, visual proof of the benefits of fruit and veg-

etable consumption, and the need for gender-specific behavioral skills.

**Conclusions and Implications:** This formative research will aid in the development of a culturally relevant nutrition intervention for low-income black American adolescents in the lower Mississippi Delta region. The results indicate that this group is more likely to respond to interventions that use role models who can provide proof that fruit and vegetable consumption is related to improved health.

**KEY WORDS:** fruits and vegetables, low-income adolescents, Social Cognitive Theory, focus groups, black American

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### INTRODUCTION

Current national recommendations for health promotion and disease prevention advise increased consumption of fruits and vegetables.<sup>1,2</sup> At the national level, 20% or less of children and adolescents eat the recommended 5 or more servings of fruits and vegetables per day.<sup>3</sup> Regional studies indicate even higher rates of inadequate fruit and vegetable consumption among children and adolescents from low socioeconomic backgrounds or from minority ethnic groups.<sup>4-6</sup> One of the initial steps in planning an intervention to improve fruit and vegetable intake among adolescents is to identify environmental, personal, and behavioral factors that mediate their consumption. Theoretical behavior models aid in identifying and understanding these factors.

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Social Cognitive Theory (SCT) postulates that behavior is the result of environmental and personal factors and that behavior, in turn, affects these environmental and personal factors in constant reciprocal relationships.<sup>7</sup> SCT has been used to identify factors predictive of fruit and vegetable consumption among middle-income elementary school children (grades 3–5) and to develop interventions to modify those eating behaviors.<sup>8–15</sup> However, only recently have studies assessing SCT constructs associated with fruit and vegetable consumption among adolescents been published.<sup>6,15–17</sup> Although these studies included ethnically and racially diverse samples, little information is available regarding the personal, environmental, and behavioral constructs operating in the fruit and vegetable choices of low-income black American adolescents. Cultural factors, such as the influence of the historical effects of slavery on establishing dietary patterns, or socioeconomic factors, such as the food resource constraints associated with food insecurity and their sequiturs, may impact on fruit and vegetable choices in this group in ways that are not likely to occur in other groups.<sup>18,19</sup> Therefore, the purpose of this qualitative study was to use a framework of SCT to explore environmental, personal, and behavioral factors among 10- to 13-year-old southern, low-income black American adolescents that mediate fruit and vegetable selection and may aid the planning of an intervention aimed at increasing fruit and vegetable consumption in this group.

## DESCRIPTION OF PARTICIPANTS AND PROCEDURES

As part of the formative research phase of a pilot intervention to increase fruit and vegetable consumption among low-income black American adolescents, we used focus group methodology to elicit personal, behavioral, and environmental factors influencing fruit and vegetable consumption in this target group. The research was approved by the Institutional Review Board at the University of Southern Mississippi. Participants were recruited from adolescents enrolled in the National Youth Sports Program (NYSP) during the summer of 2000. The NYSP is a 5-week program that incorporates athletic skills training with life skills training by providing a minimum of 15 hours of educational activities emphasizing substance abuse prevention, career planning and education, nutrition, and an active lifestyle. Ninety percent of the participants in the program must meet federal poverty guidelines.<sup>20</sup> Since NYSP participants were recruited from schools and housing projects with high rates of poverty among their students/residents, income data were not collected from participants. However, the program participants were drawn from a black American adolescent population in a 2-county area. For this population, median household income ranged from \$18 903 to \$21 365, 46% of children 6 to 11 years old were from households below the poverty level, and 40% to 42% of 12 to 14 year olds were

from households below the poverty level.<sup>21</sup> During registration for the NYSP, parents gave consent for their children to participate in the focus groups.

Focus group questions were developed following standard procedures.<sup>22</sup> Constructs from SCT identified from the literature as salient factors influencing fruit and vegetable consumption among children were used to develop the initial questions (Table 1).<sup>6,8–11,14,15,23</sup> Environmental constructs included family and peer social support and fruit and vegetable availability. Personal constructs included outcome expectancies and self-efficacy. The behavioral construct was behavioral capability to prepare meals and snacks. Other questions were developed to assess influences on fruit and vegetable consumption likely associated with the developmental stages of adolescence (locus of control and benefits and barriers to fruit and vegetable consumption), to explore factors that might motivate low-income black American adolescents to consume more fruits and vegetables, and to identify places outside the home where fruits and vegetables were eaten. These constructs could also be classified into 1 of the 3 primary domains of SCT. A researcher knowledgeable of SCT, who had not developed the questions, reviewed them, and changes were made to the questions as needed. However, owing to time constraints within the NYSP, questions were not pretested with children prior to conducting the focus groups.

Graduate students and research staff who conducted the focus groups were trained in standardized focus group methods during a 3-day workshop.<sup>24</sup> Moderators and group participants were of the same ethnic or racial background. Research staff served as the recorders during each session. During enrichment classes of the NYSP, volunteers were recruited from each class to participate in focus groups held in a separate room. Prior to the start of the focus group session, children signed consent forms. Each of 6 focus groups (3 female, 3 male groups) included 5 to 7 participants who were of similar age. Discussions were tape-recorded, and notes were taken by the recorders. Following the sessions, all tapes were transcribed verbatim by a single recorder.

Focus group data were then analyzed using content analysis methods.<sup>25</sup> Three separate reviewers, 2 of whom were recorders, evaluated response content from each focus group and identified themes in each. In the final step, 1 reviewer summarized themes and developed a narrative summary of the findings for each question. Responses in the focus groups were summarized by theme, and, in turn, the themes were assigned to SCT domains. The 3 reviewers who coded the data reviewed the final themes to ensure that they were appropriate and adequately reflected responses gathered during the focus group sessions.

## QUALITATIVE FINDINGS

Forty-two low-income black American adolescents (21 males, 21 females) participated in 6 focus groups, which were

Table 1. Question Guide and Social Cognitive Theory Construct Related to Each Question

| Question  | SCT Construct |
|---|---------------|
| <b>Home</b>   |               |
| If you looked in the refrigerator or the kitchen cabinet at your home right now, what kinds of fruits would you find?     | Environmental |
| If you looked in the refrigerator or the kitchen cabinet at your home right now, what kinds of vegetables would you find? | Environmental |
| Do you ever eat fruit away from home? What are some other places that you eat fruit?                                      | Environmental |
| Do you ever eat vegetables away from home? What are some other places that you eat vegetables?                            | Environmental |
| Do you help prepare the meals and snacks in your home?  | Behavioral    |
| <b>Personal Belief</b>  |               |
| What do you think will happen if you don't eat fruit? Vegetables?   | Personal      |
| What are some reasons you don't eat fruit? Vegetables?  | Personal      |
| Do you make the decisions about what you eat? If not, who decides what you will eat?                                      | Personal      |
| If you wanted to eat more fruits or vegetables, would you be able to? Why or why not? How would you get them?             | Personal      |
| What would make you eat more fruit? Vegetables?   | Personal      |
| <b>Family and Friends</b>   |               |
| Do you think that your friends would help you eat more fruits and vegetables?   | Environmental |
| How could they help you eat more fruit? Vegetables?   |               |
| Is there any member of your family who you feel would help you eat more fruits and vegetables?                            | Environmental |
| How could they help you eat more fruit? Vegetables?   |               |
| What are some reasons you and your friends eat fruit? What are some reasons you and your friends eat vegetables?          | Personal      |
| What would you do if no one is eating fruits or vegetables, but you would like to eat fruits or vegetables?               | Personal      |

SCT indicates Social Cognitive Theory.

segmented by gender and age to include 10 to 11 year olds, 12 year olds, and 13 year olds. Despite a lack of pretesting of the focus group questions, children did not voice problems comprehending the intent of the questions, nor did their answers indicate that the questions were misinterpreted. Table 2 shows major themes grouped by personal, behavioral, and environmental constructs.

Taste emerged as a major limiting factor related to consumption. The taste of vegetables produced more negative reactions than the taste of fruits. Common terms used to describe the taste of vegetables included "nasty" and "yucky." Another barrier expressed by adolescents was the type of preparation. Many of the participants said that vegetables had to be prepared with sugar if they were going to eat them. Vegetables prepared with cheese were also preferred, suggesting that these preparation methods directly affected taste. Statements made by participants related to this factor included "If they ain't got no sugar, I ain't gonna eat no vegetables" and "I like fruits, but vegetables gotta have some sugar." Other barriers mentioned included dislike of the form of the fruits and vegetables (canned fruits and vegetables from the store), boredom with the same vegetables, and allergies.

In addition to being a barrier to consumption, taste also emerged as a positive outcome expectancy; several adolescents reported that they ate fruit merely for the sweet taste: "I like fruits the best 'cause they're sweet...." Another positive outcome expectancy expressed was eating fruits and vegetables for general health or for specific nutrients or benefits, such as potassium, vitamins, energy, and improved skin appearance.

In response to questions about eating fruits and vegetables in a variety of situations (self-efficacy), a majority of the participants believed that they could. Both genders and most age groups indicated high levels of self-efficacy for fruit and vegetable consumption. The only group that did not express a high level of self-efficacy was the 13-year-old males. One comment related to the low level of self-efficacy in this group was "...because my parents don't teach me to eat...you know, different types of fruits and vegetables." Participants verbally affirmed that their self-efficacy in the presence of peers would be high. However, the recorder noted that the tone of the group changed during this question, with some participants hesitating before speaking and others "boasting" about their ability to do what they wanted despite the opinion of their friends: "I don't care what they're doin'; I'd get me some [fruit/vegetable]."

To evaluate behavioral capability, we asked about involvement in preparation of meals and snacks containing fruits and vegetables. The majority indicated that they at least helped with preparation of meals and snacks. There appeared to be gender differences related to this construct. For example, helping with preparation of foods, such as chopping onions and celery, cutting potatoes or cabbage, or cooking simple dishes such as "noodles," were mentioned by the females. Males either did not cook or were involved only in very simple food-associated tasks.

An environmental factor impacting fruit and vegetable consumption was a lack of availability. Some participants expressed that they did not have fruits and vegetables available at home. For example, one participant stated, "Most of

Table 2. Themes Identified during Focus Groups by Construct

|  |
|--|
| <b>Personal</b>  |
| Barriers to F&V consumption                                  |
| Taste  |
| Preparation method   |
| Form (canned vs fresh)                                       |
| Outcome expectancies   |
| Sweet taste of fruit   |
| General health   |
| Cosmetic benefits  |
| Sports performance   |
| Self-efficacy  |
| Positive (with exception of 13-year-old males)               |
| Locus of control   |
| External locus of control at home                            |
| Mothers and grandmothers are primary decision-makers at home |
| Preference   |
| Sweet taste  |
| Fruits preferred over vegetables                             |
| <b>Behavioral</b>  |
| Behavioral capability  |
| Males, simple food preparation tasks                         |
| Females, more complex food preparation tasks                 |
| <b>Environmental</b>   |
| Barriers to F&V consumption                                  |
| Lack of availability at home                                 |
| Lack of availability at neighborhood grocery store           |
| Locations to eat F&Vs outside home                           |
| Extended family  |
| Restaurants  |
| School   |
| Social support   |
| Family, positive support                                     |
| Peers, negative support                                      |

F&V indicates fruit and vegetable.

the time, we don't have them at home... 'cause fruit is not something that parents just buy, just to be buying." Other children expressed that the grocery store where parents shopped did not sell fruits and vegetables. One participant indicated a lack of refrigeration as a barrier to fruit and vegetable consumption.

Responses related to the construct of locus of control indicated that few adolescents made decisions about what they ate (internal locus of control) at home. Rather, external locus of control, classified as a personal factor in our schema, appeared to be the predominant theme related to eating fruits and vegetables in this context. A mother or grandmother was most often mentioned as making the decision about what the participants ate at home. A representative statement here was "because my momma does the cooking, and she chooses." Some older adolescents indicated that they

did not choose what they ate at home if their mother or grandmother was present but did make their own decisions in their absence: "mine makes me eat what she wants, but when she's gone, I eat what I want."

Participants identified several locations where they were likely to eat fruits and vegetables outside the home; the 3 most common locations included the homes of other family members, restaurants, and school. Some responded that they obtained fruits and vegetables at the grocery store, and one participant ate fruits and vegetables at the hospital, where he visited during the summer.

There were 2 dimensions to social support: family and peer social support. Generally, participants expressed that they had support from family members to increase fruit and vegetable consumption. Again, mothers and grandmothers were named as the primary support for the consumption of fruits and vegetables. One participant noted, "[Momma] takes away the junk food." One 12-year-old female explained about eating vegetables, "At my grandma's house, that's all you eat." Only 3 participants, all 13-year-old males, believed that their families would not encourage fruit and vegetable consumption. Peer support was perceived as negative. Most respondents believed that their peers would not support them in consuming more fruits and vegetables because most of their peers ate "junk." A statement embodying this concept was "my friend got a lot of junk food, and he be eatin' it a lot." Only a few adolescents indicated that friends would encourage them to eat fruits and vegetables.

## DISCUSSION

The purpose of this qualitative study was to explore psychosocial factors from SCT that might mediate the consumption of fruits and vegetable among low-income black American adolescents. Previous research has primarily focused on middle-income children. The responses of focus group participants could be categorized into themes in each of the 3 domains of SCT. Within the personal domain, taste appeared to be a major theme or factor influencing fruit and vegetable consumption among these low-income black American adolescents, appearing in 3 of 4 constructs in this domain (see Table 2). This is in agreement with others who have studied the food choices of children.<sup>13,14,23</sup> In our study, taste could be a negative factor (barrier) and a positive factor (preference and outcome expectancy) of fruit and vegetable consumption. In particular, the sweet flavor of fruit or adding sugar to vegetables was mentioned numerous times and with great emphasis by the focus group participants. Adding sugar to vegetables during preparation was mentioned frequently in the focus groups and anecdotally has been a common practice in many southern households. Future research should further explore this practice because it has not been well documented in the literature.

Self-efficacy for eating fruits and vegetables was generally positive among participants, with the exception of the

13-year-old males. This group indicated that their apparent lack of self-efficacy was related to the absence of family social support at home. Corwin et al reported that children (predominantly middle-income white) with the highest levels of self-efficacy to improve eating behaviors were more likely to consume recommended dietary intakes.<sup>9</sup> The expressed influence of mothers and grandmothers on fruit and vegetable consumption is similar to the findings of Young et al, who reported that parents influenced fruit and vegetable consumption,<sup>26</sup> but contrasts with those of Cullen et al, who reported that black parents did not prepare or encourage consumption of fruits and vegetables.<sup>14</sup> Some of the participants in our study talked about family members, grandparents in particular, who grew vegetables, and this may partially explain why grandmothers in our study were identified as having a strong positive influence on fruit and vegetable consumption. Although our participants expressed self-efficacy for choosing fruits and vegetables among peers, we suspect that peer pressure within groups may have prompted responses to impress other group members and the moderator. Cullen et al also reported that adolescents in their study said that peer influence would not affect their intake of fruits and vegetables, yet peers were the strongest influence not to eat fruits and vegetables.<sup>14</sup> Further exploration of self-efficacy and its interaction with family and peer social support in this group could help clarify our findings.

In our study, a lack of availability was identified as a barrier to fruit and vegetable consumption by a small number of the participants. Most research showing a relationship between availability and children's food consumption has focused on availability at home or at school.<sup>10,12</sup> We probed for locations where fruits and vegetables are eaten outside of the home, assuming that adolescents might be more independent in selecting places to eat and thus have potentially greater exposure to fruit and vegetable availability than elementary children. Participants identified other relatives' homes, particularly their grandmother's house, and restaurants, in addition to school and home, although restaurants were more frequently mentioned as a source of vegetables than fruits. Determining the locations where fruits and vegetables are available may potentially provide information for intervention planning in the future. Other researchers have found that fruits and vegetables are only occasionally consumed by children when dining out.<sup>14</sup>

We also probed for more information on the role that motivation plays in low-income adolescents' consumption of fruits and vegetables; however, factors that comprise their motivation are not fully known. We asked what would influence participants to eat more fruits and vegetables. The majority discussed improved health or sports performance, which we categorized as positive outcome expectancies. For example, one 12 year old stated, "Cause we be havin' to play baseball, you know what I'm sayin'? If you ain't in shape, you gonna ride that pine [sit the bench].... I gotta stay in shape 'cause I run that 100, and I run the 200 too." A theme on the need to have visual proof that eating fruits and vegetables

would result in a healthy body also emerged in relation to motivation to eat fruits and vegetables ("...if I see their body get better..."). Since focus groups were held during a sports camp, it is possible that the groups were already more conscious of a diet-health connection. However, we are not aware of previous literature that has reported adolescents' need to see visual evidence of the benefits of eating fruits and vegetables.

In summary, our study identified important and unique aspects of personal, environmental, and behavior factors related to fruit and vegetable intake of low-income black American adolescents in a southern rural state. Although our study shared perspectives with previous investigations using SCT factors related to fruit and vegetable consumption by children, there were subtleties expressed for this sample. We found that taste, availability, extended family influence, visual proof of the benefits of fruits and vegetables, and the need for gender-specific behavioral skills are important areas to include in an intervention designed for this target group. The limitations of this study include a small convenience sample of children selected for ethnic or racial and socioeconomic backgrounds. As with any qualitative research, the ability to generalize to a larger population is limited. However, the purpose of our research was to explore factors influencing low-income southern black American adolescents' fruit and vegetable choices for the purpose of developing culturally relevant interventions and measurement tools for a comparable group. In addition, responses were similar and consistent over the 6 focus groups. According to Morgan, when themes across the groups become repetitive, conducting additional focus groups is unnecessary.<sup>27</sup> Therefore, these results provide valuable information for the formative phase of a pilot intervention to increase fruit and vegetable consumption among similar black American adolescents. As part of the focus group process, all participants were assured that all comments would remain confidential. Therefore, the researchers assumed that the comments made were honest and based on reality. However, children varied in their ability to verbally express their thoughts, which may have resulted in some comments that seem unusual or unbelievable. In addition, peer influence may have affected responses in some of the groups, with some of the adolescents making comments that would enhance their acceptance within the group.

## IMPLICATIONS FOR RESEARCH AND PRACTICE

Our research has implications for planning a culturally appropriate intervention and for developing measurement instruments for low-income black American adolescents. From a practitioner's standpoint, an intervention should allow hands-on activities to help incorporate fruits and vegetables into meals and snacks, as well as provide interaction with individuals who demonstrate good health as it relates to fruit and vegetable consumption. The lack of availability of



fruits and vegetables in the homes is a primary concern, indicating the need to involve family members in intervention activities. In addition, our research indicates a need for gender-specific educational materials and gender-segregated educational groups for children at this age. The strong role of extended family, particularly grandmothers, in promoting fruit and vegetable intake also suggests that they be considered a channel for increasing fruit and vegetable intake with this population. It is interesting to note that seeing physical proof of the benefits of fruit and vegetable consumption was suggested as a way to help improve intake. This suggests that interventions with this group may be more effective if physically fit and culturally appropriate role models are involved in providing nutrition education. From a policy standpoint, summer programs for children, such as the NYSP, may be vehicles for delivery of nutrition education or reinforcement of nutrition messages provided through child nutrition programs. The possible lack of fruits and vegetables at grocery stores in local neighborhoods also needs further investigation. It was not a primary focus of this study but would certainly impact any intervention aimed at increasing fruit and vegetable consumption in the home.

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